

U. S. ARMY CHAPLAIN CENTER AND SCHOOL

THE DEVELOPMENT OF PERSONALITY DURING INFANCY

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CHAPTER I

PERSONALITY BEGINS IN THE PRENATAL PERIOD

Many persons believe that the development of personality starts at the moment of birth and continues on through adulthood, but John J. B. Morgan, professor of psychology at Northwestern University and some other personality theorists feel that the development of personality actually develops at the moment of conception, and that personality is being formed in the prenatal period. Morgan believes that to understand any person requires some knowledge of how he developed from conception until birth as well as after the birth process. Life after birth should be regarded as a continuation of life before birth. Yet one cannot know with certainty just what happens during prenatal life, because of the impossibility of direct observation. For this reason much of the knowledge is received from experiments with animals. These experiments make clear the fact that the period of prenatal development is one of adaptation rather than a mere mechanical unfolding of preformed elements, as some people have been inclined to believe. The fact is accepted that lower animals might not develop and adapt in exactly the same manner as the human embryo, yet the generalization is at least accepted that the prenatal period is probably a period of adaptation, even for the human organism.

There are four factors which play an important part in the life of the embryo before birth. They are genetic factors, maturation, individual adaptation, and specific learning. In considering the genetic factors, the kind of person who develops is partly determined by the materials in the germ cells from which he grows. This factor deals purely with heredity. No two people are exactly alike because each human individual results from the union of two germ cells, one from each of two parents. This is not true in one-celled animals where the parent contributes equally to each offspring and when they develop, they are the exact copy of the parent. The human parent does not give any part of his adult being to the offspring but what is transmitted is carried through a tiny specialized cell called the germ cell. The parts of the cells from the two parents combine and the result is an intermediate pattern depending upon the combination of the elements contained in the cells from the two parents. Genes are the tiny substances in the germ cell which determine the growth of the fertilized cell into a human being. In the germ cell these genes are strung into structures known as chromosomes. Each human has twenty-four pair of chromosomes, and each chromosome contains a great number of genes. Thousands of genes take part in the development of any individual, and the way in which these thousands interact provides the primary basis for characteristics which are known as hereditary traits. Any one characteristic is dependent upon a great number of genes. This is why it is not possible to find a simple explanation of human traits just by tracing them back to the genes. Yet, it should be possible to examine the manner in which heredity mechanisms operate

without being fooled into the realization that one trait comes from only one gene. The laws of inheritance are just attempts to state the ways in which the genes distribute themselves in the process of reproduction. This depends upon the chance division of the genes in the maturation division of the cells before fertilization, and upon the chance of mating of the genes from the mother with the genes from the father.¹

Cytoplasm is the gel in the germ cell. The development of the embryo is influenced by this gel. Experiments have been performed on lower animals. It was shown that it was possible to remove the nucleus from the egg of a salamander, a frog, or a lizard at the time of fertilization before it had time to unite with the nucleus of the male sperm. The egg which was deprived of the female nucleus was activated by the sperm and produced an animal which showed some of the characteristics of the mother. The conclusion from such experiments is that the characteristics of the offspring are determined not only by the genes in the germ cells but by the cytoplasm as well.²

The development of the embryo depends upon a great number of factors. These factors never operate in isolation. A factor which takes a predominant role at one time may fade into insignificance at a later time. A living organism starts with one cell and then by the process of repeated division, the cell multiplies into

¹ John J. B. Morgan, Child Psychology, 3rd ed. (New York: Farrar & Rinehart, Inc., 1942), p. 38.

² Ibid., p. 39.

great numbers. It is a hard task to explain how an aggregation of cells becomes a system with different parts becoming diversified and yet living in harmony with other parts which have different forms and functions.

Experimental work with the sea urchin has demonstrated that cells which would ordinarily form one part of the mature animal may take on other functions when interference with normal growth makes such a diversion of task necessary. If the egg, instead of producing a half embryo, will form a normal, complete and proportionate, though somewhat undersized embryo.³ These experiments show clearly that in the early stages individual cells are not destined to become certain parts of the mature individual. These experiments also indicate that large fragments of a young embryo contain organizing factors which determine the typical pattern of the total animal. Remove certain elements, and other elements will be assigned the task of those which have been lost and a normal animal will emerge.⁴

The function of cells may be interchanged. In the gastrulation stage, it is possible to locate cells which would take on a certain function in the ordinary course of events. Once these parts of the embryo have been identified, a fragment which would form the brain may be interchanged with a fragment which would form the stomach. If each of these fragments had a specific role from which it could not depart, there would develop an island of skin in the middle of the brain, and a fragment of brain in the stomach, but this is not

³Ibid., p. 40.

⁴Ibid., p. 40.

the case. Each fragment complies with the function called forth by its new location, and the skin cells now located in the brain form brain tissue, while the brain cells now located in the stomach form skin tissue. In the early stages of the embryo, a cell may be diverted from its apparent function by stresses imposed from outside, but in later stages, once it has been modified in the direction of a special function, it will continue to maintain its trend in spite of forces which in earlier stages of development would change the trend.⁵ These experiments show that heredity influences the biological make-up of the prenatal embryo and that personality traits are not totally separated from this realm; in fact they may be said to be greatly influenced by the hereditary factors present in the prenatal infant. Other hereditary factors involved in the development of the prenatal individual are maturation, individual adaptation, and specific prenatal learning. Maturation may be considered as the process of coming to full development. Although many theorists have believed that maturation depends wholly in factors inherent in the individual, yet experiments have shown that certain favorable surroundings are necessary before maturation can take place. This would place maturation as an environmental trait as well as an inherent trait. It is not wholly environmental, however, for individual adaptation explains that there seems to be a general on-going drive which will carry the embryo on to maturity in a favorable environment. Yet even though the embryo develops to full maturity, in spite of radical changes in the surroundings, this does not

⁵Ibid., p. 44.

mean that the embryo would have developed in the same way without the radical changes.

Every human being before he is born lives in an environment. This is the mother's womb. The human fetus can respond to stimulation long before it is born, but it has no direct contact with the outside world and therefore has little opportunity to learn from it. Movement of the head, truck, and limbs are "spontaneous" in the sense that they occur when no external stimulus is applied. This movement is called mass action. Psychologists have determined that prenatal maturation gives the child sensory receptors which enable him to receive many different stimuli when he is born.⁶ Purely environmental factors affect the development of the prenatal individual. The prenatal individual has specific learning qualities. Usually learning is defined as the improvement of efficiency of performance by means of practice, usually measured by some such criterion as speed, freedom from error, better co-ordination, economy of effort, or perfection of form.⁷ Although the prenatal infant cannot do these things, there is nevertheless a crude type of learning which gradually improves until the individual is able to learn in the specific manner prescribed in the above narrower definition. Experiments on animals have shown that mechanical factors are important in the development of the prenatal individual. If frog's eggs, in the two-celled stage, are inverted and kept in that position, the substance in the egg is disturbed

⁶ Floyd L. Ruch, Psychology and Life, 3rd ed. (Chicago, Atlanta, Dallas, New York: Scott, Foresman & Co., 1948), p. 95.

⁷ Morgan, Child Psychology, p. 36.

and redistributed in such a manner that twins may be formed; whereas if the egg had not been disturbed, a single frog would have resulted. In this instance the effect of gravity has been such as to cause twinning.⁸

It has been noted that an increase in temperature accelerates development, and a decrease in temperature retards development. In some cases, different organs are affected differently by the same temperature change, and by exposing embryos to certain temperatures, it is possible to change the proportions between various organs.

It has also been found that experimental defects have been produced by means of x-rays. By the administration of proper doses the nucleus on an egg may be destroyed while the rest of the egg retains its vitality and can develop after being fertilized by a normal sperm without destroying its vitality or fertilizing power. It has been shown by this means that an embryo may develop which contains a disproportionate amount of male and female nuclear components.⁹

It has been shown that chemical substances produce a marked effect upon the development of the prenatal individual. An experiment showed that the development of cyclopic monsters were affected when eggs of certain fish were treated with magnesium salts, ether, or alcohol. The conclusion seems to be warranted that normal development can be influenced by subtle changes in the chemical environment in which the embryo must live.

⁸ Ibid., p. 45.

⁹ Ibid., p. 46.

The functional organization of the prenatal infant is accomplished through the nerves and through certain hormones. It is here that it is clearly seen that not only the biological being but also personality and behavior traits are beginning to form. The development of nerve and sensory organs have definite effects upon quantitative development of nerve centers. An experiment showing neural adaptation is found where motor nerves and sensory nerves were forced to change roles.

A purely motor and a purely sensory nerve were severed and cross-united. As a result the regenerating fibers growing out from the nerve centers were forced into wrong tracks: the new motor fibers into the old sensory pathways, and the new sensory fibers into the old motor pathways. Motor fibers came to the sense organs and sensory fibers to the muscles.¹⁰

A great amount of experimental work has made it clear that hormones have a profound effect upon development and upon certain kinds of behavior. Functional adaptation is found also in bones. Bone is made up of a small needle-like element called spicules. These are not arranged at random but form patterns of lines that correspond to the mechanical stresses which the bone must undergo. If a bone is broken and reset in such a manner that the lines of stress are changed, the spicules of bone change in conformity with these new lines of stress. Inborn defects may be the result of inability on the part of the embryo to adjust to unfavorable conditions.¹¹

¹⁰Ibid., p. 48.

¹¹Ibid., p. 50.

CHAPTER II

PERSONALITY OF INFANT AT BIRTH

Although hereditary factors have influenced the embryo from the moment of conception, the moment of birth is the place to discuss hereditary factors, for it is hard to measure hereditary factors, and for that matter, anything in the human embryo. If hereditary factors are discussed sometime after birth, then there is the possibility that some of the hereditary factors might be confused with environment. There is even a remote possibility of this happening even at birth since we have already stated that the human embryo engages in some form of crude learning before birth.

Popular opinion seems to be strongly in favor of the belief that traits of personality are very largely determined by heredity. Yet it is futile to search for traits that are entirely due to heredity, or for ones that are entirely the result of learning and the action of environment, for the very existence of behavior necessitates an organic structure to perform it; no trait is uninfluenced by heredity. Since all characteristics may be modified by circumstantial factors, all depend in some degree upon environment. The actions of heredity and environment are not antagonistic, as is sometimes incorrectly assumed, but supplementary. Every characteristic of man is due to the development of certain original material under certain environmental conditions. Heredity initiates the

process of development and determines the limits within which it can be modified by external factors. Genetic determiners do not affect all traits in equal degree. Some human characteristics may be designated as relatively fixed, in that they vary only in narrow limits or are affected only by the most intense and catastrophic changes in environment. Other traits are relatively plastic and can be modified in large degree by the ordinary variations of environment likely to occur in the usual course of life. Heredity does not directly determine function or operation of an organism, but influences it only through the formation of organs and members on which functioning may depend. The genes play a part only in the development of the structure of the organism. When there is a question as to the influence of heredity on a dynamic trait of behavior, the first necessity is to discover the structure on which that trait depends. A defective number or quality of nerve cells in the brain, or a deficient thyroid gland may be as much influenced by heredity as the color of the hair. Characteristics of behavior that are based on intricate patterns of neural organization can be regarded as influenced by heredity only in an indirect manner. When a behavior trait can be ascribed to a definite variation in structure and the probability of its being much affected by heredity is increased.

The environment of the infant broadens at the moment of birth. No more is he confined to the mother's womb. Birth has been explained as a traumatic experience for the unborn infant is now taken out of his secure environment and must search out on his own to have his desires satisfied. Birth is the time when the individual comes into his own. Although he is totally dependent upon others at birth and shortly after, yet in one sense of the word, he has

something to say about the way he helps mold his personality by his actions. An infant learns through conditioning. An infant is sensitive to light, color, odor, taste, movement and to pain. The human infant at birth has many reflexes that are simple, automatic ways by which he responds to stimuli. The newborn baby is powerless to move from place to place but is capable of creeping movements elicited by pressure on the soles of the feet. Studies have shown that the new-born baby is engaging in adjustive reactions to his physical world. Energies and forces, such as light, sound, and pressures, are not passively endured, but he does something about the stimuli which act upon him: he cries and grasps and makes defense movements and sucks and moves about. He is beginning to interact with his environment.

CHAPTER III

FACTORS IN DEVELOPMENT OF PERSONALITY DURING INFANCY

Infancy is defined in this paper as being the period from birth to three years of age. It is in this period that less emphasis seems to be placed on heredity factors and more emphasis on environmental factors. Yet the human personality is the product of an interaction of heredity and environment. Without biological heredity there would be no matrix upon which the environment could impress stimuli, and without environment innate tendencies would never be called forth. There is some evidence that heredity specifically sets some personalities on the path to emotional stability, others to instability. The leaning by most psychologists, however, is toward a greater emphasis upon the contributions of environment. Personality theorists such as Kurt Lewin, Harry Stack Sullivan and Gardner Murphy place their main emphasis upon inter-personal relationships and dealings with environment. It was Freud who said that everything with the individual, personality included, stems from an infantile sexuality. Although he defines this as being biological and instinctive, yet he explains human behavior in terms of different stages that one goes through in order to satisfy the sex urge. Erik Erikson has taken Freud's stages and shows that all human behavior is not biological or

instinctive, but that each stage represents a certain action and environment seems to make the most difference. It is here that he discusses the idea of the infant's basic trust versus basic mistrust in the universe. Erikson states that the first demonstration of a social trust in the baby is the ease of his feeding, the depth of his sleep, the relaxation of his bowels. He finds that more and more adventures of the senses arouse a feeling of familiarity, of having coincided with a feeling of inner goodness. Forms of comfort, and people associated with them become as familiar as the gnawing discomfort of the bowels. The infant's first social achievement is his willingness to let the mother out of sight without undue anxiety or rage, because she has become an inner certainty as well as an outer predictability. A consistancy, continuity, and sameness of experience provide a rudimentary sense of ego identity which depends on the recognition that there is an inner population of remembered and anticipated sensations and images which are firmly correlated with the outer population of familiar and predictable things and people. An inner frustration which finds no outlet becomes the primary sense of badness, that original sense of evil and malevolence which signifies the potential loss of all that is good because he could not help destroying it inside, thus driving it away outside. Erikson states that this is where an infant first establishes a basic trust or mistrust in the universe. The general state of trust implies not only that one has learned to rely on the sameness and continuity of the outer providers, but also that one may trust oneself and the capacity of one's own organs to cope with urges. Psychopathology says that basic trust

is very important at this age and the only therapy for weakness of trust in either infants or adult personalities is the re-establishment of a state of trust. The firm establishment of enduring patterns for the solution of the nuclear conflict of basic trust versus basic mistrust in mere existence is the first task of the ego, and thus first of all a task for the mother, and maternal care. It should be noted that the amount of trust derived from earliest infantile experience does not seem to depend on absolute quantities of food or demonstrations of love, but rather on the quality of the maternal relationship. Mothers create a sense of trust in their children by that kind of administration which in its quality combines sensitive care of the baby's individual needs and a firm sense of personal trustworthiness within the trusted framework of their culture's life style. This forms the sense in the child for a sense of identity which will later combine a sense of being "all right" of being oneself, and of becoming what other people trust one will become. There are few frustrations in this and other stages which the growing child cannot endure if the frustration leads to the ever-renewed experience of greater sameness and stronger continuity of development, toward a final integration of the individual life cycle with some meaningful wider belongingness.¹²

The infant's first encounter in establishing a basic trust or mistrust in the universe is when the newborn is put to the mother's breast. His inborn and more or less coordinated ability

¹² Erik H. Erikson, Childhood and Society, (New York: W.W. Norton & Co., 1950), p. 222.

to take in by mouth meets the breast's, and the mother's, and the society's more or less coordinated ability and intention to feed him and to care for him. At this point he lives through and loves with his mouth and the mother lives through and loves with her breasts. To him, the oral zone is the focus of a first and general mode of approach, namely incorporation. He is now dependent on the delivery of material of all kinds directly to satisfy him. As he is willing to take in with his eyes what enters his visual field and also in other areas where he is developing to take things in. In order to assure that his first experience may not only keep him alive but also help coordinate his sensitive breathing and metabolic and circulatory rhythms, deliveries to his senses must have the proper intensity and occur at the right time; otherwise his willingness to accept changes abruptly into defense. The loss of mutual regulation with the maternal source of supply is exemplified by a mother's habitual withdrawal of the nipple because she fears she will be nipped. The total situation implied in the baby's readiness to get what is given is the mutual regulation with a mother who will permit him to develop and coordinate his means of getting as she develops and coordinates her means of giving. In getting what is given and in learning to get somebody to do for him what he whishes to have done, the baby develops the necessary ego ground-work to get to be the giver. The oral stages, then, form in the infant the springs of the basic sense of trust and the basic sense of evil which remain the source of primal anxiety and of primal hope throughout life.

Although the mode of incorporation dominates at this early life of the infant, yet the functioning of any orificial body zone requires the presence of all modes as auxiliary modes. There is in the first incorporative stage a clamping down with jaws and gums (second incorporative mode); there is spitting up and out (eliminative mode); and there is a closing up of the lips (retentive mode). In vigorous babies a general intrusive tendency of the whole head and neck can be noticed, a tendency to fasten itself upon the nipple and into the breast (oral-intrusive). Any one of the auxiliary modes may be especially pronounced in some children and hardly noticeable in others; and then again such modes may grow into near dominance by a lack or loss of inner control and a lack or loss of mutual regulation with the sources of food and oral pleasure. Other modes are eliminative and intrusive modes.

The human infant begins with a great store of behavior patterns which are so complicated that they almost defy description. The behavior of an infant is in the responses he gives to his environment, his biological being and his wants and desires. Some infant behavior responses are opening and closing of the eye-lids; narrowing of the pupils in response to bright light; coordination activity in eye movements; upward position in sleep; accompaniment of crying in response to irritation of any kind; facial and mouth responses such as sucking, yawning, smiling, frowning, etc.; throat responses such as crying, cooing, sobbing, sneezing, coughing, swallowing and holding the breath; head movements of upward and downward, turning head from side to side and balancing the head; hand and arm responses such as arm flexion, closing of the hand, creeping,

shivering and trembling. In all these the infant reacts in a certain way as he tries to adjust to his environment.

With regard to motor patterns there is a consistent and orderly development. First the eyes come under control in the pursuit movements stimulated by bright moving objects. Then the muscles of the neck become stronger, and the baby turns and lifts his head. Before three months, he is raising his head and chest, propping himself with his elbows. By the end of the first four months he has the muscles of his eyes, head, and neck well under control. Motor control then moves down to involve the shoulders, arms, and hands. He begins to notice his hands, touches and attempts to grasp things, and by about fifteen weeks can play with toys placed in his hands. Then control passes down to his lower trunk and legs. He sits alone with his legs spread far apart, swaying about but gaining strength in his trunk muscles. Then he notices his toes, plays with them, and gradually learns to gain some control of his legs. At about thirty-eight weeks he begins to make progress when prone and a few weeks later tries to scoot backward. Then comes creeping, standing alone, and finally independent walking and running. As maturation proceeds, additional motor possibilities are born and, with proper opportunities for exercise, skilled acts are learned. It seems to follow that the fundamental principle of motor education should consist in giving the infant freedom to exercise the various groups of muscles as they begin to gain in maturity and strength and that all attempts to force the infant to do highly skilled acts before such maturation are either useless or harmful.

The first emotional reactions of an infant are vague, undirected movements which seem to be somewhat proportional to the intensity of the exciting situation. Certain stimuli will cause violent activity on the part of an infant. Others will tend to reduce the intensity and extensity of his conduct. These variations in degree of activity are emotional responses. In observing infants, an adult finds it almost impossible not to interpret the child's conduct in terms of the experiences he himself feels. The inferences that have been drawn about a child's emotions are often extremely absurd. When an adult reads a specific emotion into the behavior of a child he is usually including in his judgment not only what the child is doing but what made him respond. The significant thing about emotional behavior in infants is the ease with which it may be modified. This function is far more valuable than the patterns or uniformities which may be found. When an infant is stimulated intensely he must do something to relieve the situation. Having limited experience, he has no fixed mode of response and so reacts in all directions with little discrimination. From this mass of reactions some bit of conduct may be effective in changing conditions and removing the stimulus or changing its intensity. An infant's mental health is important. Infancy is a very impressionable period, and infants are keenly aware of unfavorable attitudes and emotional tension. The infant's need for love and affection, as well as for recognition and achievement, will persist throughout life. The more profound his feelings in infancy of being wanted and loved, the less likely will signs in insecurity or other symptoms of maladjustment develop during his later years. Good habits in eating, feeding, sleeping and getting rid of waste material will make for better mental health of the infant.

Persistent attempts have been made to devise tests which will enable psychologists to measure the intelligence of infants. Any kind of a test is just an attempt to make an exact measurement and babies are so erratic in their behavior that they will invariably introduce a certain amount of error into any infant tests, no matter how carefully the tests may have been formulated or be given. Psychologists recognized that the human being manifested adaptive activities even before birth, but it was clear that many of these were based on physiological processes, and may have had no connection with the type of adaptation needed in the solution of an intellectual problem. There was evidence that the brain was far from full development at birth, and we know that intelligence depends largely upon cerebral functioning. The problem was to determine whether any of these adaptive activities of a metabolic or physiological order might be indicative of adaptation on a higher level. Another possibility was that the first manifestations of cerebral functioning of a higher order might be indicative of what could be expected later on. These workers observed and recorded. They noted how the baby behaved when lying on his back, when lying on his stomach, when someone talked to him or smiled at him; how he sat, crawled, climbed stairs; how he dealt with rings, cubes, pellets, spoons, cups, strings, bells and rattles; how he babbled, cooed, and began to talk, and many other activities. If it is recognized that an infant intelligence test is less accurate than an intelligence test for the school age child, and if they are accepted with reservations, these infant scales can serve a valuable purpose in detecting mental deficiency or extreme superiority at an early age. The most recent

development of an infant scale is the Cattell scale. It has reduced to specific concrete form the instructions for administration; it includes pictures to enable the examiner to check his observations so that he may know whether the child is doing what he should do to pass the test; the materials are very simple and can be carried around in a small case; and the scoring is very simple. Its range is from two months to thirty months. The only validation to date is the consistency of Intelligence Quotient (I.Q.) of the same babies when tested throughout the entire range of the test. There still remains the task of validating the I. Q.'s obtained in infancy against the intelligence of these same infants as revealed in success in intellectual pursuits as they mature.

CHAPTER IV

VIEWING THE INFANT AS AN INTEGRATED PERSONALITY

In doing research for this paper, I am convinced that no one factor makes up the personality of an infant just as no one factor makes up the personality of an adult. Hereditary factors certainly play a part as well as environmental factors; although I would emphasize the environmental over the hereditary factors. A man's biological make-up as well as other factors go to make up a personality. Personality starts at the moment of conception and is influenced by inherited genes and chromosomes; it develops in the womb; it develops further when it is born; it passes through certain stages and it accepts these stages and passes on to more mature stages or regresses to earlier stages. Education and culture make a difference in personality make-up. Infancy is another chain in the link of the never ending chain for our personalities are not static but are always becoming. The only way, then, to view the personality of an infant is to view it as a integrated personality with potential for growth as well as the possibility of becoming fixated on one certain level. The infant possesses an integrated personality.

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NOTE: I have used the following approved writing guide in
the writing of this research paper:

Turabian, Kate L. A Manual for Writers of Term Papers, Theses,
and Dissertations. Chicago: University of Chicago Press,
4th ed., 1973.

Donald G. Christensen